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UNDER THE PATENT COOPERATION TREATY-CHAPTER I

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PRELIMINARY AMENDMENT

APPLICANTS: Michael Horn et al. DOCKET NO.: 112740-355
SERIAL NO: GROUP ART UNIT:
FILED: EXAMINER:
INTERNATIONAL APPLICATION NO.: PCT/DE01/01221
INTERNATIONAL FILING DATE 30 March 2001
INVENTION: DATA TRANSFER METHOD AND ARRANGEMENT

Assistant Commissioner for Patents,
Washington, D.C. 20231

10

Sir:

Please amend the above-identified International Application before entry into the National stage before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

15

In the Specification:

Please replace the Specification of the present application, including the Abstract, with the following Substitute Specification:

S P E C I F I C A T I O N

TITLE OF THE INVENTION

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DATA TRANSFER METHOD AND ARRANGEMENT

BACKGROUND OF THE INVENTION

The present invention relates to a data transfer method and to an appropriate system for topping up a prepaid electronic credit over a data and telecommunication network.

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Besides the Internet, telecommunications (in particular, mobile telecommunications) today represent an area of rapid technical and economic development and a significant source of economic growth and new social developments. For a large number of the people in industrial states, the mobile

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telephone ("mobile") is increasingly becoming a universal communication and information instrument and is also increasingly being used to access goods and services.

5 The dynamic development of mobile telecommunications has been significantly assisted in the last two to three years by the provision of tariffs on the basis of a prepaid credit (specifically, in the form of "prepaid cards"). These tariffs are found to be attractive in particular, due to their having no basic charge irrespective of use, their providing the user with a good cost control capability and their imposing no contractual obligation. For many users wanting to use newly appearing terminals
10 immediately, this contractual obligation is also a decisive drawback in view of the extremely dynamic development of technology and tariffs in this area. Prepaid credits appeal especially to those young and dynamic users who, on the other hand, still have relatively low incomes.

15 There are various methods for recharging prepaid credits which have also become established in practice. Besides purchasing a voucher, these include paying top-up sums by credit card, transfer instruction, direct debit or standing order. These payment methods are established and are familiar to the great majority of users. However, they are largely based on stable bank accounts and, in turn, assume a certain creditworthiness. As such, significant advantages of the prepaid method are lost again
20 for certain user groups at this point. Some of these payment methods also involve onerous, relatively long-lasting commitment of the customer to a particular, formalized mode of payment and can be changed only with a relatively high level of complexity.

25 The present invention is, therefore, directed toward providing an improved data transfer method and an improved system of the type specified above which can be used to top up a prepaid account flexibly as required in a simple and, nevertheless, reliable way.

SUMMARY OF THE INVENTION

30 The present invention encompasses the fundamental concept of using an "electronic wallet" (eWallet) to top up a prepaid credit; i.e., an electronic settlement account which is set up in a data network and can be electronically connected directly to the prepaid account. It also encompasses the concept of designing this settlement

account, which is also referred to below as eWallet account, such that it can be “controlled” from a terminal associated with the holder of the prepaid credit (or with a third party), so that topping-up of the prepaid credit can be controlled from the terminal in real time.

5 The proposed method thus follows existing payment methods from the B2C (Business-to-Consumer) sector for paying for goods and services ordered over the Internet. In this context, an account management server on which the settlement account is managed, also referred to below as eWallet server, acts as a purchaser or a sender of the appropriate sum of money. Another server, on which the prepaid credit 10 is managed, also referred to below as prepaid server, performs the function of the vendor or receiver of money. In a way, the payment option provided by the prepaid credit represents the “goods” (for example, for telecommunication services).

15 Although a prepaid credit normally will be topped up by the holder himself/herself, that is to say from a settlement account associated with the holder of the prepaid credit, the proposed solution is not limited to this. Instead, it also includes topping up the prepaid account from an external eWallet account. Normally, this account is then not accessed by the holder of the prepaid account, of course, but in fact by the holder of the eWallet account in order to start the transfer.

20 The proposed solution makes it possible to top up the prepaid account in real time; i.e., with immediate effect both for the holder and user and for the operator of the prepaid account. The electronic money is available to the operator immediately, so that the latter does not need to make any advance concession. On the other hand, the holder also need not make any advance concession without having the prepaid credit available immediately in return (as in the case of a direct debit payment, for example).

25 The proposed solution can be implemented as an independent service and can be offered as such to the users of the prepaid credit and runs on a specific application server. The latter is also referred to below as a recharge server in view of the specific function. The recharge server also performs the connection and checking operations crucial for performing the top-up operation. A crucial function in this context is the 30 checking of authentication and/or account data which are transferred by the user performing the top-up when the transaction is initiated. This check is made on the basis of comparison data stored in the network or in the prepaid memory.

As a fundamental connection, the recharge server sets up a connection to the prepaid server in order to ascertain the presence of the prepaid credit to be topped up and the level of this credit. In addition, a connection is set up to the (at least one) eWallet server on which the settlement accounts are managed, in order to use this connection to perform the data transfer producing the electronic transfer operation.

Finally, the recharge server maintains the telecommunication and data link set up by the terminal of the user initiating the top-up operation for the purposes of data entry under menu guidance, until a completion acknowledgement is transmitted. Optionally, the recharge server also sets up a connection to a terminal associated with the holder of the prepaid credit (if he/she is not identical to the user initiating the top-up). In this context, the recharge server also runs the software for controlling communication with the respective terminals; in particular, under visual or audible menu guidance.

The explanations above also reveal the fundamental functional components of a system suitable for implementing the method of the present invention, such that there is no need to describe the system aspects of the present invention in detail again at this point. In particular, it is evident that, besides the fundamental network infrastructure (in particular, a combined data and telecommunication network) it is necessary to have servers on which the prepaid credit and the settlement accounts and the application software are managed, and the user needs to have a terminal for producing the transaction and for entering the relevant data.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

25 BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows the block diagram schematic of the system to which the method of the present invention is applied.

DETAILED DESCRIPTION OF THE INVENTION

A preferred embodiment is described in detail with reference to Figure 1, the individual steps being symbolized in Figure 1 by circles containing numerals. In contrast to the use of language above, in this case the user is referred to as the "sender". A combined telecommunication and data network is simply referred to as

“NETWORK” in this case. The settlement account of the user (sender) is referred to as the “electric wallet of the sender”. The other names are in line with the explanations of terms given further above. In the example, it is assumed that the sender and the receiver are not identical; that is to say that the electronic wallet of the 5 sender is used to top up a prepaid credit of a different receiver.

The sequence of the method is as follows:

1. The sender uses his/her mobile radio terminal to set up a connection to the recharge server and authenticates himself/herself. As such, the settlement account of the sender is also clearly identifiable.
- 10 2. The recharge server uses menu guidance displayed on the sender's terminal display or else conveyed in audible form to request the sender to fill in the recharge order. Specifically, for this purpose, the sender needs to specify at least the identity (e.g., MSISDN) of the receiver's prepaid account and the sum to be transferred. If the sender has a number of accounts on the eWallet server, he/she needs to specify the 15 identity (account number) of the eWallet required.
3. The recharge server checks with the eWallet server to determine whether the specified eWallet account of the service user exists and whether the specified amount is available in the account.
4. If this is the case, the sum is reserved (blocked).
- 20 5. The recharge server checks with the prepaid server to determine whether the specified prepaid account exists and whether the specified sum can be credited to the account.
6. If this is the case, the reserved sum is transferred from the eWallet account of the service user to a service operator account, which is likewise managed on the 25 eWallet server, and at the same time the credit balance of the prepaid account is increased. This is done, in particular, by incrementing an appropriate counter. The money is transferred in real time.
7. The sender receives an acknowledgement about the successful transfer of money.
- 30 8. The receiver is optionally informed about receipt of the sum of money in his prepaid account.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

5

ABSTRACT OF THE DISCLOSURE

A data transfer method and system for topping up a prepaid electronic credit associated with a service user over a data and telecommunication network, essentially in real time, where the service user is the holder of a first electronic settlement account, and a service operator is the holder of a second electronic settlement account, 10 and, in response to a transfer signal transmitted from a terminal of the service user, the prepaid credit is increased by a predetermined electronic sum of money and, at the same time, the sum of money is transferred from the first settlement account to the second settlement account.

10

In the claims:
15 On page 7, cancel line 1, and substitute the following left-hand justified heading therefor:

CLAIMS

Please cancel claims 1-15, without prejudice, and substitute the following claims therefor:

20

16. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network, essentially in real time, the method comprising the steps of:

25

defining the service user as the holder of a first electronic settlement account; defining a service operator as the holder of a second electronic settlement

account;

transmitting a transfer signal from a terminal of the service user; and

30

increasing the prepaid electronic credit, in response to the transfer signal, by a predetermined electronic sum of money and, at the same time, transferring the sum of money from the first electronic settlement account to the second electronic settlement account.

17. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 16, the method further comprising the steps of:

- 5 managing the prepaid electronic credit on a credit management server in one of the data and telecommunication network and a telecommunication network connected thereto;
- managing the settlement account on an account management server in the data and telecommunication network; and
- 10 implementing a piece of money transfer software on an application server in the data and telecommunication network.

18. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 17, the method further comprising the steps of:

- 15 setting up a connection to the application server via the terminal of the service user;
- using the terminal to transfer to the application server at least one of an authentication code and a credit identifier for the prepaid credit, an account identifier for the settlement account, and the predetermined electronic sum of money;
- 20 checking, via the application server, the transmitted data and the sufficiency of the predetermined sum of money in the settlement account;
- debiting, if the result of the check is positive, the predetermined sum of money from the first settlement account;
- crediting the predetermined sum of money to the second settlement account;
- 25 increasing the prepaid credit by the predetermined sum of money; and
- creating a log record for the debit/credit operation.

19. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as 30 claimed in claim 18, the method further comprising the step of:

- transmitting, via the application server, an acknowledgment signal to the terminal of the service user when the transaction has been performed.

20. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 18, the method further comprising the steps of:

5 automatically setting up a connection, to check the credit identifier, between the application server and the credit management server; and

automatically setting up a connection, to check the account identifier of the settlement account, between the application server and the account management server.

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21. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 18, a method further comprising the step of:

15 entering one of the authentication code and credit and account identifier and the predetermined sum of money on the terminal of the service user via one of keyboard and voice entry under menu control.

22. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 16, wherein a first user is the holder of the prepaid electronic credit, a second service user is the holder of the first electronic settlement account, and the credit of the first service user is increased by the electronic sum of money in response to a transfer signal from a terminal associated with the second service user.

25 23. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 22, the method further comprising the step of:

30 transmitting, via the application server, a first and a second acknowledgment signal to the first and the second service user, respectively, when a transfer has been made.

24. A data transfer method for topping up a prepaid electronic credit associated with the service user over a data and telecommunication network as claimed in claim 16, the method further comprising the step of:

5 performing at least part of the transfer operation over a mobile radio network.

25. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network, essentially in real time, comprising:

10 a credit counter, managed on a credit management server, for storing the electronic credit;

first and second settlement account memories on at least one account management server;

15 money transfer software, implemented on an application server, for electronically transferring money from the settlement account memories to the credit memory;

a service user terminal connected to the data and telecommunication network for entering and transmitting data required for topping up the credit to the application server; and

20 a data link between the application server, the credit management server, the account management server and the terminal for performing the data transfers which tops up the credit.

26. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 25, 25 wherein the terminal is a mobile radio terminal connected to a mobile radio network.

27. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 25, 30 wherein the prepaid credit is stored on a prepaid card associated with a service operator and a mobile radio network.

28. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 25, wherein a trigger signal is transmitted from a first terminal to trigger the transfer of money from the first settlement account memory to the second settlement account 5 memory and to increase the count of the credit counter, and the prepaid electronic credit is associated with a second terminal.

29. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 26, 10 wherein the prepaid card is associated with the second terminal as a mobile radio terminal.

30. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 25, 15 wherein the application server has an authentication code memory and a comparison unit, connected at an input, for comparing an authentication code received from the first terminal with a stored authentication code, and for outputting an enable signal for the payment operation if the two match.

20 31. A data transfer system for topping up a prepaid electronic credit of a service user over a data and telecommunication network as claimed in claim 30, wherein the application server has a decoding unit for obtaining at least one of a credit and an account identifier for one of the prepaid electronic credit and the settlement account from the authentication code.

25 **R E M A R K S**

The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a marked-up version of the changes made to the 30 specification by the present amendment. The attached page is captioned "Version With Markings To Show Changes Made".

In addition, the present amendment cancels original claims 1-15 in favor of new claims 16-31. Claims 16-31 have been presented solely because the revisions by red-lining and underlining which would have been necessary in claims 1-15 in order to present those claims in accordance with preferred United States Patent Practice would have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 USC §§101, 102, 103 or 112. Indeed, the cancellation of claims 1-15 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-15.

10 Early consideration on the merits is respectfully requested.

Respectfully submitted,



(Reg. No. 39,056)

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VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

In The Specification:

The Specification of the present application, including the Abstract, has been amended as follows:

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S P E C I F I C A T I O N

TITLE OF THE INVENTION

DATA TRANSFER METHOD AND ARRANGEMENT

BACKGROUND OF THE INVENTION

The present invention relates to a data transfer method and to an appropriate 10 arrangement system for topping up a prepaid electronic credit over a data and telecommunication network.

Besides the Internet, telecommunications -(in particular, mobile telecommunications-) today represent an area of rapid technical and economic development and a significant source of economic growth and new social 15 developments. For a large number of the people in industrial states, the mobile telephone ("mobile") is increasingly becoming a universal communication and information instrument and is also increasingly being used to access goods and services.

The dynamic development of mobile telecommunications has been 20 significantly assisted in the last two to three years by the provision of tariffs on the basis of a prepaid credit (specifically, in the form of "prepaid cards"). These tariffs are found to be attractive, in particular ~~on account of~~, due to their comprising having no basic charge irrespective of use, their providing the user with a good cost control capability and their imposing no contractual obligation. For many users wanting to 25 use newly appearing terminals immediately, this contractual obligation is also a decisive drawback in view of the extremely dynamic development of technology and tariffs in this area. Prepaid credits appeal especially to those young and dynamic users who, on the other hand, still have relatively low incomes.

There are various methods for recharging prepaid credits which have also 30 become established in practice. Besides purchasing a voucher, these include paying top-up sums by credit card, transfer instruction, direct debit or standing order. These payment methods are established and are familiar to the great majority of users.

However, they are largely based on stable bank accounts and, in turn, assume a certain creditworthiness, which means that. As such, significant advantages of the prepaid method are lost again for certain user groups at this point. Some of these payment methods also involve onerous, relatively long-lasting commitment of the customer to a 5 particular, formalized mode of payment and can be changed only with a relatively high level of complexity.

10 The present invention is, therefore, ~~based on the object of, directed toward~~ providing an improved data transfer method and an improved ~~arrangement system~~ of the type specified above which can be used to top up a prepaid account flexibly as required in a simple and, nevertheless, reliable way.

15 The ~~method aspect of this object is achieved by a data transfer method having the features of claim 1, and the apparatus aspect of it is achieved by a data transfer arrangement having the features of claim 10.~~

SUMMARY OF THE INVENTION

15 The present invention encompasses the fundamental concept of using an “electronic wallet” (eWallet) to top up a prepaid credit, i.e., an electronic settlement account which is set up in a data network and can be electronically connected directly to the prepaid account. It also encompasses the concept of designing this settlement account-, which is also referred to below as eWallet account-, such that it can be 20 “controlled” from a terminal associated with the holder of the prepaid credit (or with a third party), so that topping-up of the prepaid credit can be controlled from the terminal in real time.

25 The proposed method thus follows existing payment methods from the B2C (Business-to-Consumer) sector for paying for goods and services ordered over the Internet. In this context, an account management server on which the settlement account is managed-, also referred to below as eWallet server-, acts as a purchaser or a sender of the appropriate sum of money. Another server, on which the prepaid credit is managed-, also referred to below as prepaid server-, performs the function of the vendor or receiver of money. In a way, the payment option provided by the prepaid 30 credit represents the “goods” (for example, for telecommunication services).

Although a prepaid credit will normally will be topped up by the holder himself/herself, that is to say from a settlement account associated with the holder of

the prepaid credit, the proposed solution is not limited to this. Instead, it also includes topping up the prepaid account from an external eWallet account. Normally, this account is then not accessed by the holder of the prepaid account, of course, but in fact by the holder of the eWallet account in order to start the transfer.

5 The proposed solution makes it possible to top up the prepaid account in real time, i.e., with immediate effect both for the holder and user and for the operator of the prepaid account. The electronic money is available to the operator immediately, so that the latter does not need to make any advance concession. On the other hand, the holder also need not make any advance concession without having the prepaid credit available immediately in return (as in the case of a direct debit payment, for example).

10 The proposed solution can be implemented as an independent service and can be offered as such to the users of the prepaid credit and runs on a specific application server. The latter is also referred to below as a recharge server in view of the specific function. The recharge server also performs the connection and checking operations 15 crucial for performing the top-up operation. A crucial function in this context is the checking of authentication and/or account data which are transferred by the user performing the top-up when the transaction is initiated. This check is made on the basis of comparison data stored in the network or in the prepaid memory.

20 As a fundamental connection, the recharge server sets up a connection to the prepaid server in order to ascertain the presence of the prepaid credit to be topped up and the level of this credit. In addition, a connection is set up to the (at least one) eWallet server on which the settlement accounts are managed, in order to use this connection to perform the data transfer producing the electronic transfer operation.

25 Finally, the recharge server maintains the telecommunication and data link set up by the terminal of the user initiating the top-up operation for the purposes of data entry under menu guidance, until a completion acknowledgement is transmitted. Optionally, the recharge server also sets up a connection to a terminal associated with the holder of the prepaid credit (if he/she is not identical to the user initiating the top-up). In this context, the recharge server also runs the software for controlling 30 communication with the respective terminals; in particular, under visual or audible menu guidance.

The explanations above also reveal the fundamental functional components of an arrangement a system suitable for implementing the method of the present invention, which means such that there is no need to describe the arrangement system aspects of the present invention in detail again at this point. In particular, it is evident 5 that, besides the fundamental network infrastructure -(in particular, a combined data and telecommunication network-) it is necessary to have servers on which the prepaid credit and the settlement accounts and the application software are managed, and the user needs to have a terminal for producing the transaction and for entering the relevant data.

10 Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

15 Figure 1 shows the block diagram schematic of the system to which the method of the present invention is applied.

DETAILED DESCRIPTION OF THE INVENTION

A preferred embodiment is described in more detail below with reference to the single figure Figure 1, the individual steps being symbolized in the figure Figure 1 by circles containing numerals. In contrast to the use of language above, in this case 20 the user is referred to as the "sender". A combined telecommunication and data network is simply referred to as "NETWORK" in this case. The settlement account of the user (sender) is referred to as the "electric wallet of the sender." The other names are in line with the explanations of terms given further above. In the example, it is assumed that the sender and the receiver are not identical; that is to say that the 25 electronic wallet of the sender is used to top up a prepaid credit of a different receiver. The sequence of the method is as follows:

1. The sender uses his/her mobile radio terminal to set up a connection to the recharge server and authenticates himself/herself. This means that As such, the settlement account of the sender is also clearly identifiable.
2. The recharge server uses menu guidance displayed on the sender's terminal display or else conveyed in audible form to request the sender to fill in the recharge order. Specifically, for this purpose, the sender needs to specify at least the identity

(e.g., MSISDN) of the receiver's prepaid account and the sum to be transferred. If the sender has a plurality number of accounts on the eWallet server, he/she needs to specify the identity (account number) of the eWallet required.

3. The recharge server checks with the eWallet server to determine whether the 5 specified eWallet account of the service user exists and whether the specified amount is available in the account.

4. If this is the case, the sum is reserved (blocked).

5. The recharge server checks with the prepaid server to determine whether the 10 specified prepaid account exists and whether the specified sum can be credited to the account.

6. If this is the case, the reserved sum is transferred from the eWallet account of the service user to a service operator account, which is likewise managed on the eWallet server, and at the same time the credit balance of the prepaid account is increased. This is done, in particular, by incrementing an appropriate counter. The 15 money is transferred in real time.

7. The sender receives an acknowledgement about the successful transfer of money.

8. The receiver is optionally informed about receipt of the sum of money in his prepaid account.

20 Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

A data transfer method and system for topping up a prepaid electronic credit associated with a service user over a data and telecommunication network, essentially in real time, where the service user is the holder of a first electronic settlement account, and a service operator is the holder of a second electronic settlement account, and, in response to a transfer signal transmitted from a terminal of the service user, the prepaid credit is increased by a predetermined electronic sum of money and, at the same time, the sum of money is transferred from the first settlement account to the second settlement account.

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